LIST OF PUBLICATIONS

Most of the papers on this list are available from my homepage:
www.math.su.se/~shapiro

References

[1] R. Fröberg, G. Ottaviani, and B. Shapiro, On the Waring problem for polynomial rings, submitted.

[2] N. Saldanha, and B. Shapiro, Spaces of locally convex curves in S^n and combinatorics of the group B^+_{n+1}, J. of Singularities, vol. 4 (2012), 1–22.

[3] B. Shapiro, M. Shapiro, A few riddles behind Rolle's theorem, to appear in Amer. Math. Monthly.

[4] V.Kostov, B.Shapiro, Hardy-Petrovich-Hutchinson's problem and partial theta function, to appear in Duke Math. J.

[5] P. Bränden, I. Krasikov, B.Shapiro, Elements of Pólya-Schur theory in finite-difference setting, submitted.

[6] D. V. Pasechnik, B. Shapiro, M. Shapiro, On moments of a polytope, submitted.

[7] B.Shapiro, M. Tater, Polynomial solutions of the Heun equation, Acta Polytechnica, vol 51(4), (2011) 90–94.

[8] P. Alexandersson, B. Shapiro, Discriminants, symmetrized graph monomials, and SOS, to appear in Experimental Math.

[9] B. Shapiro, On Evgrafov-Fedoryuk's theory and quadratic differentials, submitted.

[10] O. Katkova, B. Shapiro, and A. Vishnyakova, Multiplier sequences and logarithmic mesh, Comptes Rendus Mathematique vol 349 (1-2) (2011) 35–38.

[11] A. Khoroshkin, B. Shapiro, Using homological duality in consecutive pattern avoidance, Electr. J. Comb., vol 18(2) (2011), #P9.

[12] V. Kostov, B. Shapiro, and M. Tyaglov, Maximal univalent disks of real rational functions and Hermite-Biehler polynomials, Proc. Amer. Math. Soc. vol 139(5), (2011) 1625–1635.

[13] M. Passare, M. Rojas, and B. Shapiro, New multiplier sequences via discriminant amoebae, Moscow Math. J. vol. 11(3), July-September 2011, 547–560.

[14] B. Shapiro, Root asymptotics for the eigenfunctions of univariate differential operators, Acta Polytechnica, vol 50(5) (2010) 77–83.

[15] J. Borcea, S. Friedland, and B. Shapiro, Parametric Poincare-Perron theorem with applications, Journal d'Analyse mathematique vol. 113, issue 1, (2011) 197–225.

[16] B. Shapiro, K. Takemura, and M. Tater, On spectral polynomials of the Heun equation. II, arXiv:0904.0650, to appear in Comm. Math. Phys.

[17] T. Holst, and B. Shapiro, On higher Heine-Stieltjes polynomials, Isr. J. Math. 183 (2011) 321–347.

[18] B. Shapiro, and M. Tater, On spectral polynomials of the Heun equation. I, JAT, 162 (2010) 766–781.

[19] B. Shapiro, Algebro-geometric aspects of Heine-Stieltjes theory, J. London Math. Soc. 83(1) (2011) 36–56.

[20] V. Kostov, A. Martínez-Finkelshtein, and B. Shapiro, Narayana numbers and Schur-Szegö composition, JAT, 161 (2009) 464-476.

[21] A. Guterman, and B. Shapiro, On linear operators preserving the set of positive polynomials, JFPTA, vol 3, issue 2 (2009) 411–429.

[22] B. Shapiro, and M. Shapiro, On eigenvalues of rectangular matrices, Proc. Steklov Math. Inst. vol. 267, issue 1 (2009) 248–255.

[23] J. Borcea, R. Bøgvad and B. Shapiro, Homogenized spectral pencils for exactly solvable operators: asymptotics of polynomial eigenfunctions, Publ. RIMS, vol 45 (2009) 525–568.

[24] A. Gabrielov, A. Eremenko, and B. Shapiro, High energy eigenfunctions of one-dimensional Schrödinger operators with polynomial potentials, Comput. Methods Funct. Theory, vol 8, issue 2 (2008) 513–529.

[25] J. Borcea, B. Shapiro, Root asymptotics of spectral polynomials for the Lamé operator, Comm.Math.Phys, vol 282 (2008) 323–337.

[26] A. Gabrielov, A. Eremenko, and B. Shapiro, Zeros of eigenfunctions of some anharmonic oscillators, Annales de l'institut Fourier, vol 58, issue 2 (2008) 603–624.

[27] B. Shapiro, and M. Tater, Asymptotics of spectral polynomials, Acta Polytechnica vol 47(2-3) (2007) 32–35.

[28] M. Kazarian and B. Shapiro, A Giambelli-type formula for subbundles of the tangent bundle, Pacific J. Math. vol 230(1) (2007) 233–255.
[29] V. Kostov, and B. Shapiro, On the Schur-Szegö composition of polynomials, C. R. Math. Acad. Sci. Paris vol 343, issue 2 (2006) 81–86.
[30] A. Degtyarev, T. Ekedahl, I. Itengberg, B. Shapiro, and M. Shapiro, On total reality of meromorphic functions, Annales de l'institut Fourier, vol 57, issue 6 (2007) 2015–2030.
[31] T. Ekedahl, B. Shapiro, and M. Shapiro, First step towards total reality of meromorphic functions, Mosc. Math. J. vol 6, issue 1 (2006) 95–106.
[32] Yu. Burman and B. Shapiro, Around matrix-tree theorem, Math. Res. Lett. vol 13, issue 5–6 (2006) 761–774.
[33] J. Borcea, R. Bøgvad, and B. Shapiro, On rational approximation of algebraic functions, Adv. Math. vol 204, issue 2 (2006) 448–480.
[34] A. Gabrielov, D. Novikov, and B. Shapiro, Mystery of point charges, Proc. London Math. Soc. (3) vol 95, issue 2 (2007) 443–472.
[35] J. Borcea and B. Shapiro, Classifying real polynomial pencils, Int. Math. Res. Not. vol 69 (2004) 3689–3708.
[36] J. Borcea and B. Shapiro, Hyperbolic polynomials and spectral order, C. R. Math. Acad. Sci. Paris, vol 337, issue 11 (2003) 693–698.
[37] A. Postnikov and B. Shapiro, Trees, parking functions, syzygies, and deformations of monomial ideals, Trans. Amer. Math. Soc. vol 356, issue 8 (2004) 3109–3142.
[38] V. Sedykh and B. Shapiro, On two conjectures concerning convex curves, Internat. J. Math. vol 16, issue 10 (2005) 1157–1173.
[39] B. Shapiro, M. Shapiro and A. Vainshtein, Periodic de Bruijn triangles: exact and asymptotic results, Discrete Math. vol 298 issue 1–3 (2005) 321–333.
[40] B. Shapiro, Underground "Jewish University", Multiple facets of quantization and supersymmetry, World Sci. Publishing, River Edge, NJ (2002) 36–39.
[41] T. Bergkvist, H. Rullgård and B. Shapiro, On Bochner-Krall orthogonal polynomial systems, Math. Scand. vol 94, issue 1 (2004) 148–154.
[42] B. Shapiro and A. Vainshtein, Counting real rational functions with all real critical values. Dedicated to V. I. Arnold on occasion of his 65th birthday, Moscow Math. J. vol 3, issue 2 (2003) 647–659.
[43] S. Natanzon, B. Shapiro and A. Vainshtein, Topological classification of generic real rational functions, J. Knot Theory Ramifications, vol 11, issue 7 (2002) 1063–1075.
[44] V. Kostov and B. Shapiro, On arrangements of roots for a real hyperbolic polynomial and its derivatives, Bull. Sci. Math. vol 126, issue 1 (2002) 45–60.
[45] G. Másson and B. Shapiro, On polynomial eigenfunctions of a hypergeometric-type operator, Experiment. Math. vol 10, issue 4 (2001) 609–618.
[46] B. Shapiro and A. Vainshtein, On the number of connected components in the space of M-polynomials in hyperbolic functions, Adv. in Appl. Math. vol 30, issue 1-2 (2003) 273–282.
[47] B. Shapiro, M. Shapiro, A. Vainshtein and A. Zelevinsky, Simply laced Coxeter groups and groups generated by symplectic transvections. Dedicated to W.Fulton on ocassion of his 60th birthday, Michigan Math. J. vol 48 (2000) 531–551.
[48] A. Postnikov, B. Shapiro, M. Shapiro, Algebras of Curvature Forms on Homogeneous Manifolds, Differential topology, Infinite-dimensional Lie algebras and applications. (2000), Amer. Math. Soc. Transl. Ser 2, vol 194, 227–235.
[49] B. Shapiro, M. Shapiro, Projective convexity in $\mathbb{P}^3$ implies Grassmann convexity, Internat. J. Math. vol 11, issue 4 (2000) 579–588.
[50] B. Khesin and B. Shapiro, Homotopy classification of nondegenerate quasiperiodic curves on the 2-sphere. Geometric combinatorics (Kotor, 1998), Publ. Inst. Math. (Beograde), (N.S) vol 66(80) (1999) 127–156.
[51] B. Shapiro, M. Shapiro and A. Vainshtein, Skew-symmetric vanishing lattices and intersection of Schubert cells, Internat. Math. Res. Notices (1998), issue 11, 563–588.
[52] B. Shapiro, M. Shapiro, On ring generated by Chern 2-forms on $\mathbb{SL}_n/B$, C. R. Acad. Sci. Paris Sér. I Math. vol 326, issue 1 (1998) 75–80.
[53] M. Kazarian, R. Montgomery and B. Shapiro, Characteristic classes for the degenerations of two-plane fields in four dimensions, Pacific J. Math. vol 179, issue 2 (1997) 355–370.
[54] B. Shapiro, M. Shapiro and A. Vainshtein, On combinatorics and topology of pairwise Intersections of Schubert cells in $\mathbb{SL}_n/B$ (1997), Arnold-Gelfand Mathematical Seminars, Birkhäuser Boston, Boston, MA, 397–437.
[55] B. Shapiro, ∂-free maps satisfy the homotopy principle, Indag. Math. (NS) vol 9, issue 1 (1998) 107–111.

[56] B. Shapiro, M. Shapiro and A. Vainshtein, Connected components in the intersection of two open opposite Schubert cells in $SL_n(R)/B$, Internat. Math. Res. Notices (1997), issue 10, 469–493.

[57] B. Shapiro, Discriminants of convex curves are homeomorphic, Proc. Amer. Math. Soc. vol 126, issue 7 (1998) 1923–1930.

[58] B. Shapiro, On the number of connected components of the space of trigonometric polynomials of degree n with $2n$ distinct critical values (in Russian), Mat. Zametki, vol 62 (1997), 635–640. (English transl. in Math. Notes vol 62, issue 3–4 (1997) 529–534.

[59] B. Shapiro and V. Welker, Combinatorics and topology of stratifications of the space of monic polynomials with real coefficients, Result. Math. vol 33, issue 3–4 (1998) 338–355.

[60] V. Sedykh and B. Shapiro, On Young hulls of convex curves in $\mathbb{R}^{2n}$, J. Geom. vol 63, issue 1–2 (1998) 168–182.

[61] B. Shapiro, Tree-like curves and their number of inflection points. Differential and symplectic topology of knots and curves, Amer. Math. Soc. Transl. Ser. 2 vol 190 (1999), 113–129.

[62] A. Gorodentsev and B. Shapiro, On associated discriminants for polynomials in one variable, Beiträge Algebra Geom. vol 39, issue 1 (1998) 53–74.

[63] B. Shapiro, M. Shapiro and A. Vainshtein, Ramified coverings of S^2 with one degenerate branching point and enumeration of edge-ordered graphs, Topics in singularity theory Amer. Math. Soc. Transl. Ser. 2, vol 180 (1997) 219–227.

[64] B. Shapiro, Normal forms of the Whitney umbrella with respect to a cone-preserving contact group (Russian), Funktsional. Anal. i Prilozhen. vol 31, issue 4 (1997), 635–640 (English transl. in Funct. Anal. Applic. vol 31 issue 2 (1997) 91–94.

[65] B. Shapiro, M. Shapiro and A. Vainshtein, Kazhdan-Lusztig polynomials for certain varieties of incomplete flags. Disc. Math. vol 180 (1998) 345–355.

[66] B. Shapiro, On singularities of smooth maps to a space with a fixed cone, Math. Scand. vol 77, issue 1 (1995) 19–44.

[67] B. Shapiro, M. Shapiro, On the boundary of totally positive upper triangular matrices Linear Algebra Appl. vol 231 (1995) 105–109.

[68] B. Shapiro, M. Shapiro and A. Vainshtein, Topology of intersections of Schubert cells and Hecke algebra. Discr. Math. vol 153 issue 1-3 (1996) 305–318.

[69] K. Jewell, P. Orlik and B. Shapiro, On the complements of affine subspace arrangements, Topology Appl. vol 56 (1994) 215–233.

[70] B. Shapiro, The mixed Hodge structure of the complement to an arbitrary arrangement of affine complex hyperplanes is pure, Proc. Amer. Math. Soc. vol 117 issue 4 (1993), 931–934.

[71] B. Khesin and B. Shapiro, Swallowtails and Whitney umbrellas are homeomorphic, J. Algebraic Geom. vol 1, issue 4 (1992) 549–560.

[72] B. Khesin and B. Shapiro, Nondegenerate curves on S^2 and orbit classification of the Zamolodchikov algebra, Comm. Math. Phys. vol 145 (1992) 357–362

[73] B. Khesin and B. Shapiro, On the number of connected components in the space of closed nondegenerate curves on S^n, Bull. Amer. Math. Soc. (N.S.) vol 25, issue 1 (1991) 75–79.

[74] B. Shapiro and M. Shapiro, The M-property of flag varieties, Topology Appl. vol 43 issue 1 (1992) 65–81.

[75] B. Shapiro and A. Vainshtein, Euler characteristics for links of Schubert cells in the space of complete flags, Adv. Sov. Math. Theory of singularities and its applications vol 1 (1990), 273–286, AMS, Providence, RI.

[76] B. Shapiro and A. Vainshtein, About the Newtonian attraction of ellipsoids. (Russian) Kvant, issue 5 (1990), 18–25 (no English translation available and no record on Mathscinet)

[77] B. Shapiro, Spaces of linear differential equations and flag manifolds. (Russian) Izv. Akad. Nauk SSSR Ser. Mat. vol 54, issue 1 (1990), 173–187 (English transl. in Math. USSR - Izv. vol 36, issue 1 (1991), 183–197.

[78] V. Kostov and B. Shapiro, The flags in R^3, transversal to a given set of flags, form an M-manifold. (Russian), Vestnik Moskov. Univ. Ser. I Mat. Mekh. vol. 44 , issue 5, (1989) 26–30. (English transl. in Mosc. Univ. Math. Bull. vol 44, issue 5 (1989), 31–36)

[79] B. Shapiro, Linear differential equations and real flag manifolds. (Russian), Funktsional. Anal. i Prilozhen. vol 23, issue 1 (1989), 92–93. (English transl. in Funct. Anal. Appl. vol 23, issue 1 (1989), 82–83)

[80] A. Vainshtein and B. Shapiro, Singularities of the boundary of a domain of hyperbolicity. (Russian), Itogi Nauki i Tekhniki, Current problems in mathematics. Newest results, 236, Akad. Nauk SSSR, Vsesoyuz. Inst. Nauchn. i Tekhn. Inform., Moscow, vol 33 (1988), 193–214 (English transl. in J. Soviet Math. vol 52, issue 4 (1990), 3326–3337)

[81] B. Shapiro, The boundary of disconjugate domain for linear Hamiltonian systems. (Russian), Uspekhi Mat. Nauk, vol 43, issue 4 (1988), 170–171 (no English translation available and no record on Mathscinet)

[82] A. Vainshtein and B. Shapiro, Singularities of hyperbolic polynomials and the boundary of a domain of hyperbolicity. (Russian), Uspekhi Mat. Nauk vol 40, issue 5 (1985), 305, (no English translation available and no record on Mathscinet)
[83] A. Vainshtein and B. Shapiro, Multidimensional analogues of the Newton and Ivory theorems. (Russian), Funktsional. Anal. i Prilozhen. vol 19, issue 1 (1985), 20–24. (English transl. in Functional Anal. Appl. vol 19 (1985), 17–20)
[84] A. Vainshtein, L. Reitblat, and B. Shapiro, Asymptotic behavior of the solution of difference equations of two variables. (Russian), Differentsial' nye Uravneniya vol. 20, issue 8 (1984), 1433–1437. (no English translation available, recorded on Mathscinet)
[85] A. Vainshtein and B. Shapiro, Structure of a set of $\bar{a}$-representable numbers. (Russian), Izv. Vyssh. Uchebn. Zaved. Mat. (1980), issue 5, 8–11. (English transl. in Soviet Math. (Izv. VUZ) 1980.
[86] B. Shapiro, An algorithm for construction of a chain covering of an undirected graph. (Russian), Moskov. Inst. Inzh. Zheleznodorozh. Transporta Trudy, Prikl. Mat. i Zadachi Zheleznodorozh. Transporta, vol. 640 (1979), 138–142, (no English translation available, recorded on Mathscinet).

CONFERENCE PROCEEDINGS AND PREPRINTS

[87] B. Shapiro, M. Shapiro, Linear ordinary differential equations and Schubert calculus, Proc. of 17th Gökova Geometry-Topology conference, 2010, 79–87. (http://gokovagt.org/proceedings/2010)
[88] A. Vainshtein and B. Shapiro, The Maslov index for a quadruple of Lagrangian planes and the index of a two-folded closed trajectory of the Birkhoff billiards in $\mathbb{R}^{n+1}$. (Russian), Proc. 13th USSR Sem. on Operator Theory in Functional Spaces, Kuĭbyshev (1988), 39 (no English translation available).
[89] B. Shapiro, M. Shapiro and A. Vainshtein, Generalized Lyashko–Looijenga map, ramified coverings of the sphere, and enumeration of edge-labeled k-trees, Proc. 8th Intl. Conf. on Formal Power Series and Algebr. Combinatorics, (1996), 421–426.
[90] B. Shapiro, M. Shapiro and A. Vainshtein, Magic of Entringer numbers and Olivier functions, Proc. 14th Intl. Conf. on Formal Power Series and Algebr. Combinatorics, (2002), 211–219.
[91] A. Guterman and B. Shapiro, A note on positivity preservers, preprint available from my homepage.

RESEARCH IN PROGRESS

[92] B. Kruglikov, and B. Shapiro, Local study of analytic multi-valued univariate differentials, in preparation.
[93] R. Bøgvad, and B. Shapiro, Motherbody measures with algebraic Cauchy transform, in preparation.